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IS : 9203 (Part III) - 1979

(Reaffirmed 1999)

Indian Standard

SPECIFICATION FOR FRICTION ROLLERS FOR MINE HAULAGE TRACKS

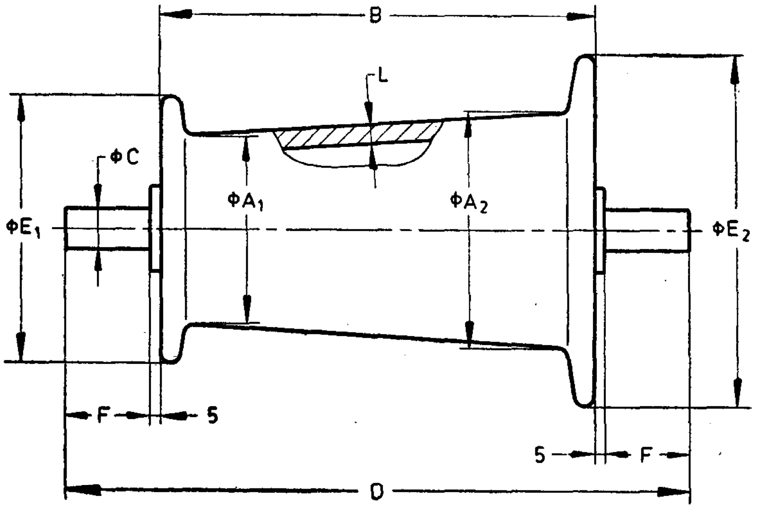
PART III TAPERED AND VERTICAL ROLLERS AND HORIZONTAL AND VERTICAL PULLEYS

Mining Sectional Committee, EDC 50; Mine Tracks Subcommittee, EDC 50 : 12 [Ref : Doc : EDC 50 (2961)]

1. Scope — Covers the requirements for tapered and vertical rollers and horizontal and vertical pulleys.

2. Dimensions

2.1 *Tapered Rollers*



All dimensions in millimetres.

Nominal Size	A_1 ±1·6	A_2 ±1·6	B ±1·6	D ±1·6	E_1 ±1·6	E_2 ±1·6	F	L +0 −1·6	C	
									Plain Bearing	Rolling Bearing
TR 1	100	125	230	330	140	165	45	10	22	19
TR 2	125	150	300	400	165	190	45	10	22	19
TR 3	150	200	300	430	190	250	60	13	29	25
TR 4	200	250	400	530	250	300	60	13	29	25

Gr 3

Adopted 7 June 1979

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Price Rs 7·00

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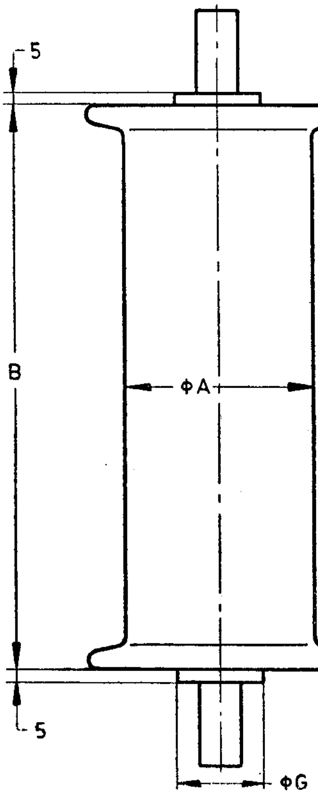
2.2 *Vertical Rollers*



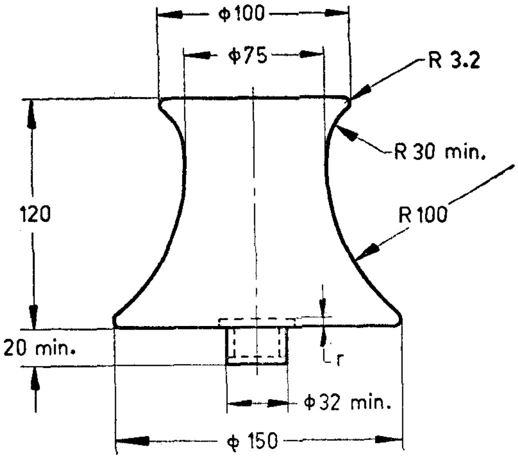
All dimensions in millimetres.

Nominal Size	Principal Dimensions			For Detailed Dimensions See IS : 9203 (Part II) - 1979* for Following Nominal Size
	A ±1·6	*B* ±1·6	*G*	
VCP 1 VCP 2 VCP 3 VCP 4	100 115 150 300	300 300 460 300	45 45 45 75	CP 2 CP 4 CP 10 CP 12
VCR 1 VCR 2 VCR 3 VCR 4	100 115 150 300	300 300 460 300	65 65 80 100	CR 2 CR 4 CR 10 CR 12
VFP 1 VFP 2 VFP 3 VFP 4	100 115 150 300	300 300 460 300	45 45 45 75	FP 2 FP 4 FP 10 FP 12
VFR 1 VFR 2 VFR 3 VFR 4	100 115 150 300	300 300 460 300	65 65 80 100	FR 2 FR 4 FR 10 FR 12

*Specification for friction rollers for mine haulage tracks : Part II Parallel rollers.

2.3 *Vertical Pulleys*

2.3.1 *Small pulley* (*nominal size — VP 1*)



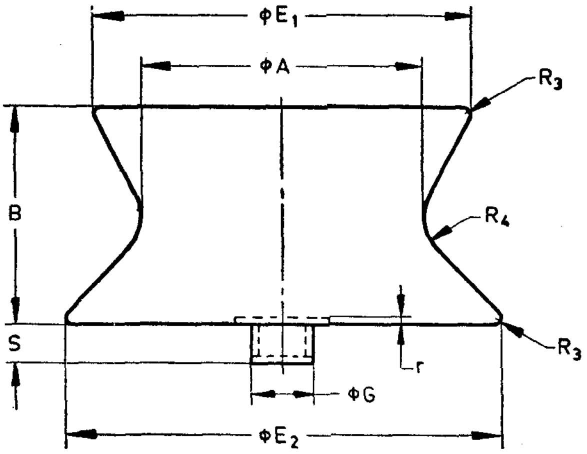
All dimensions in millimetres.

2.3.1.1 The bearing face or boss shall be recessed to a maximum depth *r* of 3·2 mm.

2.3.1.2 A headed stub-spindle may be used with a head not less than 6 mm thick and 42 mm in diameter.

2.3.1.3 Tolerance on all dimensions shall be ±1·6 mm.

2.3.2 *Large pulley*



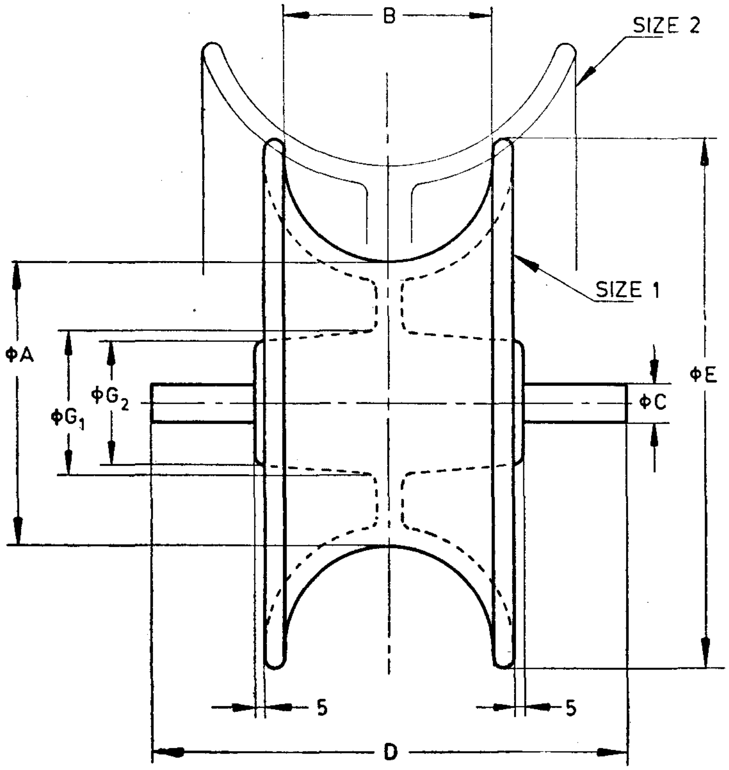
All dimensions in millimetres.

Nominal Size	*A* ±1·6	*B* ±1·6	E_1 ±1·6	E_2 ±1·6	*G* *Min*	R_3 ±1·6	R_4 ±1·6	*S* *Min*
VP 2	150	115	200	230	32	3·2	25	20
VP 3	150	115	200	300	32	3·2	25	20

2.3.2.1 A headed stub-spindle may be used with a head not less than 6 mm thick and 42 mm in diameter.

2.3.2.2 The bearing face or boss shall be recessed to a maximum depth *r* of 3·2 mm.

2.4 *Horizontal Pulleys*



All dimensions in millimetres.

Nominal Size	*A*	*B*	*D*	*E*	With Rolling Bearing			With Plain Bearing		
					C	G_1	G_2	*C*	G_1	G_2
HP 1	150	130	250	280	20	75	65	22	60	50
HP 2	250	175	300	380	25	90	85	30	70	65

2.4.1 Tolerance on machined surfaces shall be ±0·8 mm and on cast surfaces shall be ±3·2 mm.

3. General Requirements — Shall conform in all respect with IS : 9203 (Part I) - 1979 'Specification for friction rollers for mine haulage tracks: Part I General requirements'.

4. Construction

Type of Roller or Pulley	Construction
Tapered rollers	a) Cast roller, bored and fitted with pressed-in spindle or b) With cast-in spindle; plain bearing in the mounting or c) With separate spindle; plain bearing in the roller or d) With separate spindle; roller bearing in the roller
Vertical rollers	a) With separate spindle; plain bearing within the roller or b) With separate spindle; roller bearing within the roller
Vertical pulleys	The spindle shall be fixed in the mounting. The bearing of either plain or rolling type shall be within the pulley. The pulley may be supplied either with or without mounting plate.
Horizontal pulleys	a) With cast-in spindle; plain bearings in mounting or b) With separate spindle; plain bearing in roller or c) With separate spindle; roller bearing in roller

5. Designation — The pulleys and rollers conforming to this standard shall be designated by commonly used name, nominal size given against each (*see* **2.1** to **2.4**) and the number of this standard.

Example:

A tapered roller of nominal size TR 3 shall be designated as :

Tapered Roller TR 3 IS : 9203 (Part III)

6. Selection of Rollers

6.1 Rollers having cast-in spindle shall not be used at roller speeds exceeding 200 rev/min.

6.2 Roller bored and having pressed-in spindles designated to run in external plain bearings shall not be used at speeds above 500 rev/min.

6.3 Rollers with rolling bearings shall be used at speeds above 500 rpm and shall be seriously considered for speeds lower than this where loading is excessive, for example, on brow of a gradient.

6.4 Rollers with impregnated self lubricated bearings shall be preferred for speeds around 1 000 rpm.

6.5 The use of sealed, grease packed or impregnated bearing is preferable from maintenance point of view.

6.6 In case of vertical pulleys, pulleys of nominal size VP 2 and VP 3 shall be preferred provided that circumstances necessitate the use of pulleys of nominal size VP 1.

EXPLANATORY NOTE

This standard on friction rollers is being issued in different parts as follows:

Part I General requirements
Part II Parallel rollers
Part III Tapered and vertical rollers and horizontal and vertical pulleys
Part IV Rollers with non-metallic bearing surfaces

In the formulation of this standard considerable assistance has been derived from the following publications :

BS 3876 Specification for rope rollers and mounting for colliery track haulage: Part 2:1965 Tapered and vertical rollers; also vertical and horizontal spindle pulleys. British Standards Institution.

NCB 484/1965 Tapered and vertical rollers for rope haulage. National Coal Board, London.

NCB 486/1965 Horizontal and vertical spindle small pulleys for rope haulage, issued by National Coal Board, London.

Printed at Delhi Printers, Delhi, India